AIRPORT: Seattle-Tacoma International (SEA)
ASSOCIATED CITY: Seattle
ARC: D-V
Region: Central Puget Sound

AIRPORT DATA AND FACILITIES

Seattle-Tacoma International Airport (Sea-Tac) is located in King County, 10 miles south of downtown Seattle, adjacent to Interstate 5. The Airport has six based aircraft including two multi-engine, three turbojets, and one helicopter. The latest available data indicate that Sea-Tac had a total of 445,677 operations in 2000, including 236,355 operations by air carrier aircraft. In 1998 14,173,752 passengers were enplaned at the Airport, of which 1,211,174 passengers boarded international flights. Sea-Tac is the largest airport in Washington and was ranked 18th in the United States for passenger enplanements in 1998. The Airport is served by approximately 30 airlines, 10 of which are foreign-flag carriers. The air carriers serving Sea-Tac do so with every type of aircraft imaginable, including turboprop and turbojet aircraft manufactured in the United States, Canada, Brazil, Russia, and the European Airbus consortium. Cargo is shipped to and from Sea-Tac by nearly 50 domestic and foreign-flag carriers in belly holds of passenger aircraft and by dedicated cargo aircraft.

In order to accommodate the volume of air traffic at Sea-Tac, the air traffic control tower is operational 24 hours a day, 7 days a week. The Airport has two runways. Runway 16L-34R is 11,900 feet long, 150 feet wide, has a grooved asphalt surface, and is equipped with high intensity runway lights (HIRL) and centerline lights (CL). Runway 16L is equipped with precision approach path indicators. This runway end is also equipped with a type 2 approach lighting system (ALSF2) and touch-down zone lights (TDZL), which support CAT I through CAT IIIc precision approaches, the latter of which has no visibility or decision height minimums. Other published approaches to this runway end include VOR or GPS and NDB non-precision approaches.

Runway 34R is equipped with PAPI's. This runway is also equipped with touch-down zone lights and a medium intensity approach lighting system (MALSR), which supports a CAT I precision approach. This runway end also has VOR or GPS and NDB published non-precision approaches.

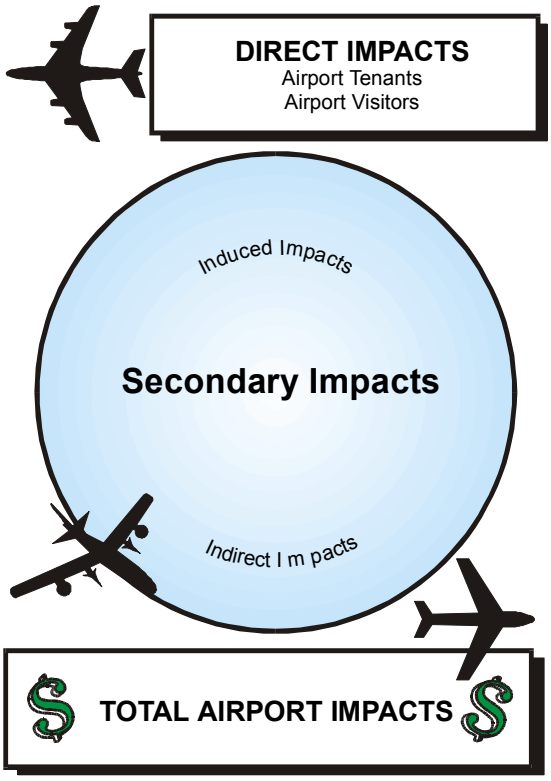
Runway 16R-34L is 9,425 feel long, 150 feet wide, has a grooved concrete surface, and is equipped with HIRL and CL. Runway 16R has PAPI's, and is also equipped with ALSF2 and TDZL, which support CAT I through CAT IIIc. This runway end also has a published VOR or GPS non-precision approach.

Runway 34L is equipped with MALSR, which supports a CAT I precision approach. This ruwnay end is also equipped with PAPI's and has a published VOR or GPS non-precision approach.

ECONOMIC IMPACTS

The economic impacts of Washington's airports were calculated using a methodology which has evolved over the past decade and is nationally recognized as the standard for conducting economic impact studies of airports. The methodology is consistent with analytical models used by the Federal Aviation Administration (FAA), and employs the use of direct survey information and an input/output model (IMPLAN) as developed by the U.S. Department of Commerce to determine multipliers specific to the state of Washington for "secondary" economic impacts.

Types of Economic Impact - This study identified and examined those aviation activities at the public use airports in Washington that created economic impacts. These impacts are generated in three ways: **1)** Direct, **2)** Indirect, and **3)** Induced Effects. Combined, the three impact types yield the total economic impacts of an airport, as described below:



DIRECT ECONOMIC IMPACTS

These economic impacts occur as a consequence of providing aviation services. These impacts usually occur at the airports, and comprise the financial expenditures by firms which carry passengers (air carrier, air charter or air taxi) or cargo; firms which serve the air carrier and general aviation functions (airport tenants); governmental agencies which support aviation; ground transport firms; and others. In every instance, the impacts include only expenditures where the recipient is located within each airport's service area.

General aviation and commercial service operations accounted for approximately 5,669,501 visitors. The total combined direct output of on-airport tenants and general aviation and air carrier visitors was approximately $11,610,648,418. These first-round expenditures were responsible for approximately 94,952 jobs, which generated $1,838,453,353 in wages.

INDIRECT ECONOMIC IMPACTS (Secondary Impact)

These economic impacts occur as a result of the use of aviation service. They include the regional expenditures made by air passengers who visit the region (at hotels, restaurants, ski facilities, etc.); expenditures by the region's residents associated with their use of aviation; and expenditures by firms having economic activity which is dependent on the airport. These indirect impacts accounted for 22,486 jobs and posted wages of $1,011,606,376.

INDUCED ECONOMIC IMPACTS (Secondary Impacts)

The "indirect" and "direct" impacts represent increases in regional final demand. Such increases do not represent total economic impact; there is also a "multiplier" effect. This multiplier effect comprises the local value of money as it circulates through the local economy and as individuals or firms associated with airport business buy goods and services in the local economy. Induced impacts accounted for 28,304 jobs and posted wages of $755,191,004. Each airport's total economic impact is the sum of the three types of impacts.

TOTAL ECONOMIC IMPACTS

The total economic impact across the state were quantified by adding together the direct, indirect and induced impacts for each airport, and interpreting, comparing, and presenting the results.

The output of the IMPLAN model enabled the presentation of total economic impacts by airport in terms of three economic impact measures: 1) jobs (employment); 2) earnings (payroll), and; 3) economic activity (output). Each of these was determined based on individual multipliers per industry categories. In each case, total impacts include the aviation sector itself, as well as the “multiplier effect” of the aviation sector. The impacts were estimated using Year 1998 data.

All three indicators of economic impact are useful; however, the monetary measures should not be added together, as discussed below:

- **Jobs (Employment)** - The number of employees who are employed in the aviation industry, plus the aviation-oriented share of those that are employed in sectors that support the air passenger (hotels, restaurants, etc.) plus those employed in the industries included in the multiplier effect impacts. The number of jobs attributable to an industry is always greater than simply those in the industry itself, due to the "re-spending" of money. Total employment impact was approximately 146,245 jobs.

- **Labor Earnings (Payroll)** - The sum of the wages and salaries to all employed persons that the aviation industry pays, directly or indirectly, to deliver the output of final aviation demand. Earnings Impacts are always included in the Economic Activity totals, so they should not be summed with the Economic Activity impact. Earnings are a very conservative proxy for "value added." Earnings may be greater or less than the Direct and Use values depending on the industry type. Total earnings impact was $3,605,250,734.

- **Economic Activity (Sales Output)** - The value of the aviation final demand (aviation or airport service), plus the "multiplier" effect (the sum of all of the intermediate goods and services needed to produce the aviation final demand, plus the induced impacts of increased household consumption). Total economic activity equals the sum of intermediate demands, consumption demand, government demand, investment demand, and net export demand. Economic Activity is always larger than both the Direct and Use values because it includes the multiplier effect. Total economic activity impact was $16,926,634,605.

	Direct Impacts	+ Indirect Impacts	+ Induced Impacts	= Total Impacts
Jobs (Employment)	Number of Jobs Supported	Number of Jobs Supported	Number of Jobs Supported	Total Number of Jobs Supported
	94,951.9	22,485.6	28,304.3	146,245.0
Labor Earnings (Payroll)	Annual Salary Supported	Annual Salary Supported	Annual Salary Supported	Total Annual Salary Supported(Dollars)
	$1,838,453,353	$1,011,606,376	$755,191,004	$3,605,250,734
Economic (Sales Output)	Contribution to Economy (Dollars)	Contribution to Economy (Dollars)	Contribution to Economy (Dollars)	Total Contribution to Economy (Dollars)
	$11,610,648,418	N/A	N/A	$16,926,634,605

SUMMARY

On an annual basis, Seattle-Tacoma International Airport tenants and its visitors in King County, Washington contributed the following total annual economic benefit:

Jobs (Employment)

Total 146,245

Labor Earnings (Payroll)

Total $3,605,250,734

Economic Activity (Sales Output)

Total $16,926,634,605